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ABSTRACT

A study was conducted to determine differences in performance and attitudes between center and non-center student teachers. Those in the Teacher Education Center [University of Maryland], a cooperatively developed and administered program, were assigned not to one supervising teacher but to the center staff or a department. The study included comparative data from various center and non-center groups in several different semesters on 1) verbal interaction (Flanders System and Aschner-Gallagher thought process classification), 2) Ryan's Teacher Characteristic Scale, 3) selected categories of Medley-Mitzel OScAR, 4) self-reported teaching activities, 5) pilot secondary mathematics program, and 6) attitudes and self-perception (Child Attitude Scale, Teacher Characteristics Scale, Rokeach Dogmatism Scale, and Edwards Personal Preference Schedule). More center teachers had experience with selected media, team teaching, programed learning, and had more frequent supervisory conferences. They lecture less, have students participate more, show a higher indirect-direct ratio for overall teaching, and ask students to elaborate more frequently. They also show greater verbal understanding, stimulating and imaginative teacher behavior, emotional adjustment, and favorable attitude toward democratic pupil practices. Non-center teachers engaged in more convergent and less divergent and evaluative thinking. In the attitude studies non-center students show more significant changes on more scores. (JS)

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TEACHER EDUCATION CENTERS MAKE A DIFFERENCE

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TEACHER EDUCATION CENTERS MAKE A DIFFERENCE

The Teacher Education Center concept is a cooperatively developed and administered teacher education program. In a center, student teachers are not assigned to one supervising teacher; instead, they are assigned to the center staff or to a department. The student teachers' experiences are varied and individually prescribed.

In each of the centers, a series of workshops are offered to supervising teachers to develop their skills of analyzing and modifying teaching behavior.

In one pilot program in mathematics teacher education, student teachers are taught methods of teaching in the center and immediately practice the teaching skills in simulated, constructed, and regular classroom settings.

Although the center concept embodies many readily acceptable ideas, the final measure of effectiveness is the difference in performance and attitudes of the student teachers in centers and non-centers. The determination of these differences is the purpose of the studies reported herein.

This report includes comparative data on the following:

1. Verbal interaction
   a) Flanders system
   b) Aschner-Gallagher classification of thought processes
2. Ryan's Teacher Characteristic Scale
3. Attitudes and Self-Perception of Student Teachers→
4. Selected categories -- Medley-Mitzel's OScAR
5. Self-reported teaching activities
6. Pilot secondary mathematics teacher education program.

Procedure - Performance Data

In the Spring semester, 1968, student teachers (elementary) were assigned to centers and non-centers in the normal manner. From these assignments groups of twenty-five were randomly chosen for the study.

Student teachers in each group taught a five-minute lesson to five randomly s selected children during the first week of the semester and again during the last week. These performances were videotaped and coded using Flanders Interaction Analysis and Medley-Mitzel Observation Scale and Record.

In the Fall semester, 1968, and Spring semester, 1969, student teachers were randomly selected for center and non-center assignment. At the conclusion of each

semester, each student teacher was requested to prepare and teach a ten-minute lesson to five students. They were directed to choose a lesson which would be representative of their teaching ability. This performance was videotaped and coded using Flanders Interaction Analysis system.

Twenty two-minute segments in each group were randomly selected and tape scripts were made. Using the Aschner-Gallagher classification system, the verbal interaction was coded and the mean frequency of each category determined.

Procedure - Report of Teaching Activities

During the 1966-67 academic year, all student teachers in both centers and non-centers were asked to report on the nature and frequency of various teaching experiences they had.

Procedure - Attitudes and Self-Perception

The procedure for this aspect of the study is described in the latter part of this report.

Procedure - Ryan's Teacher Characteristic Scale

Student teachers who had been randomly assigned to centers and non-centers during the same period of time completed the Ryan's instrument during the last week of their student teaching assignment.

Procedure - Pilot secondary mathematics education program

During the Spring semester, 1969, student teachers in secondary mathematics were assigned randomly to center and non-center schools.

The center program consisted of both general and mathematics methods being taught in the center school by a team of university professors and center teachers. Integrated with these seminars were a variety of simulated, constructed, and classroom experiences focusing on the teaching skills studied.

Data were gathered throughout the semester by video and audio taping each group's performance. At this writing these data have not been completely analyzed.

Included in this report are comparative data on each group's final teaching performance. An audio tape was made of the student teacher's class in the final week of the semester. This performance was coded using Flanders Interaction Analysis system.

An Analysis of the Data

Coders for the study were teachers and graduate students trained to use the various instruments. Training was continued until interrater reliability reached a minimum of .80.

The data were analyzed using the Mann Whitney U test. This test, being one of the most powerful non-parametric tests, avoids the assumptions of normality, permits easy computation, and is adaptable to small sample size.

Results

The following tables summarize the results of analysis of the data. Figure I shows that a greater percentage of teachers in centers have experience with selected media, team teaching, and programmed learning, as well as more frequent supervisory conferences. Experiences showing less than ten percent differences were not graphed.

Figure 2 summarizes the performance differences of center and non-center student teachers during the Fall semester, 1968. Based on Flanders categories of Interaction Analysis, student teachers in centers elicit a greater number of student initiated responses (9) and (9-9), use a greater number of accepting responses to students (3), lecture less (5), and have students participate more (8 and 9). Center student teachers also show a higher indirect-direct ratio for their overall teaching (I/D). Using OScAR, it was also found that center teachers ask students to elaborate more frequently (EL 1, 2).

Table I summarizes the results on the Ryan's Teacher Characteristic Scale. Center student teachers show greater (a) verbal understanding, (b) stimulating, imaginative teacher behavior, (c) emotional adjustment, and (d) favorable attitude toward democratic pupil practices than their non-center counterparts at relative high levels of significance. Non-center students show stronger attitudes toward businesslike teaching. These findings tend to generally support those of Amershek using different instruments as reported earlier in this paper.

The analysis of the performance data for Spring and Fall, 1969 (Table III) shows results similar to those of the earlier study. However, the categories of accepting student responses and eliciting student initiated responses failed to reach levels of significance. The incidence of praising and encouraging students was significantly greater for center teachers than for non-center teachers.

Table IV displays the teaching patterns used by the different groups, the main

difference being that the center teachers used a 4-3-2-4 pattern nearly half of the time, which was almost twice that of the non-center student teacher.

The analysis of thought processes revealed that non-center student teachers engaged in significantly more convergent thinking that center teachers, while the latter exhibited significantly more divergent thinking. The center student teachers were also engaged in more evaluative thinking. See Table V.

Although the evaluation of the pilot mathematics program is incomplete, an analysis of interaction differences indicates that student teachers in the program talk less and elicit more student initiated talk. This is also supported in the analysis of their teaching patters.

In summary, student teachers in centers do teach differently and hold different attitudes than their non-center peers.

Student Teacher Attitudes and Self-Perception*

The objective of the study was to establish the existence of self-perceptions of student teachers before they entered the program and to survey the same characteristics at its completion. The differences in the characteristics could then be inferred as the impact of the experience. There was no intention of predicting success or evaluating achievement of the student teachers or of the program. For this study the aspects of attitude were limited to the student teacher's attitude toward children, characteristics of themselves as teachers, tolerance of others' viewpoints, and manifest needs as a normal adult.

Procedure

The original sample included all of the elementary students enrolled in student teaching for one semester (N = 125), but attrition normal to such groups resulted in complete data being collected on 99 students. There were only three males in the sample; therefore, the scores were not inspected for sex bias.

All of the sample were asked to complete four instruments at the beginning of the study. The student teachers were asked to complete another copy of the same instruments at the end of the semester. It was assumed that the supervisors' attitudes were less subject to change than the students' and were stable over the semester. The instruments were the Child Attitude Scale and Teacher Characteristics Scale developed by the University of Texas IRCOPPS project and adapted by Seidman, The Rokeach Dogmatism Scale, and the Edwards Personal Preference Schedule.

The mean score on each of the instruments completed by the student teachers was inspected for change and the differences tested for significance by use of the t-test. The levels of significance were set at .01 and .05. The mean of the supervising teachers' scores on each of the instruments was compared to the mean scores for the student teachers in their center. The differences were tested for significance by use of the t-test also.

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*Excerpted from a preliminary report by Dr. Kathleen Amershek, College of Education, University of Maryland.

Results

The student teachers did show significant changes in their attitudes over the semester. Both groups increased their self-perception as a teacher and decreased their need for change. The non-center students showed more significant changes on more scores than the center students.

The center group showed change in two of the scales of the EPPS. Their score on the need for change decreased over the semester significantly at the .01 level. Their self-perception as a teacher increased significantly at the .05 level.

Their score on the Rokeach scale moved toward being more openminded but did not achieve significance.

The non-center groups showed significant differences on six of the EPPS scales. Their need for achievement, need for exhibitionism increased. Their need for deference, affiliation, nurturance and change decreased.

Their self-perception as a teacher increased significantly at the .01 level.

Their scores on the Rokeach scale were not significant but did move toward a more closed position.

Their scores on the attitude toward children decreased, but not significantly.

The comparison of a subgroup of center students with their supervising teachers showed the students with a significantly smaller need for order than their supervisors at the beginning of the semester and decreased this need even more as the semester ended.

The greater interest of the student teachers in heterosexuality was significant

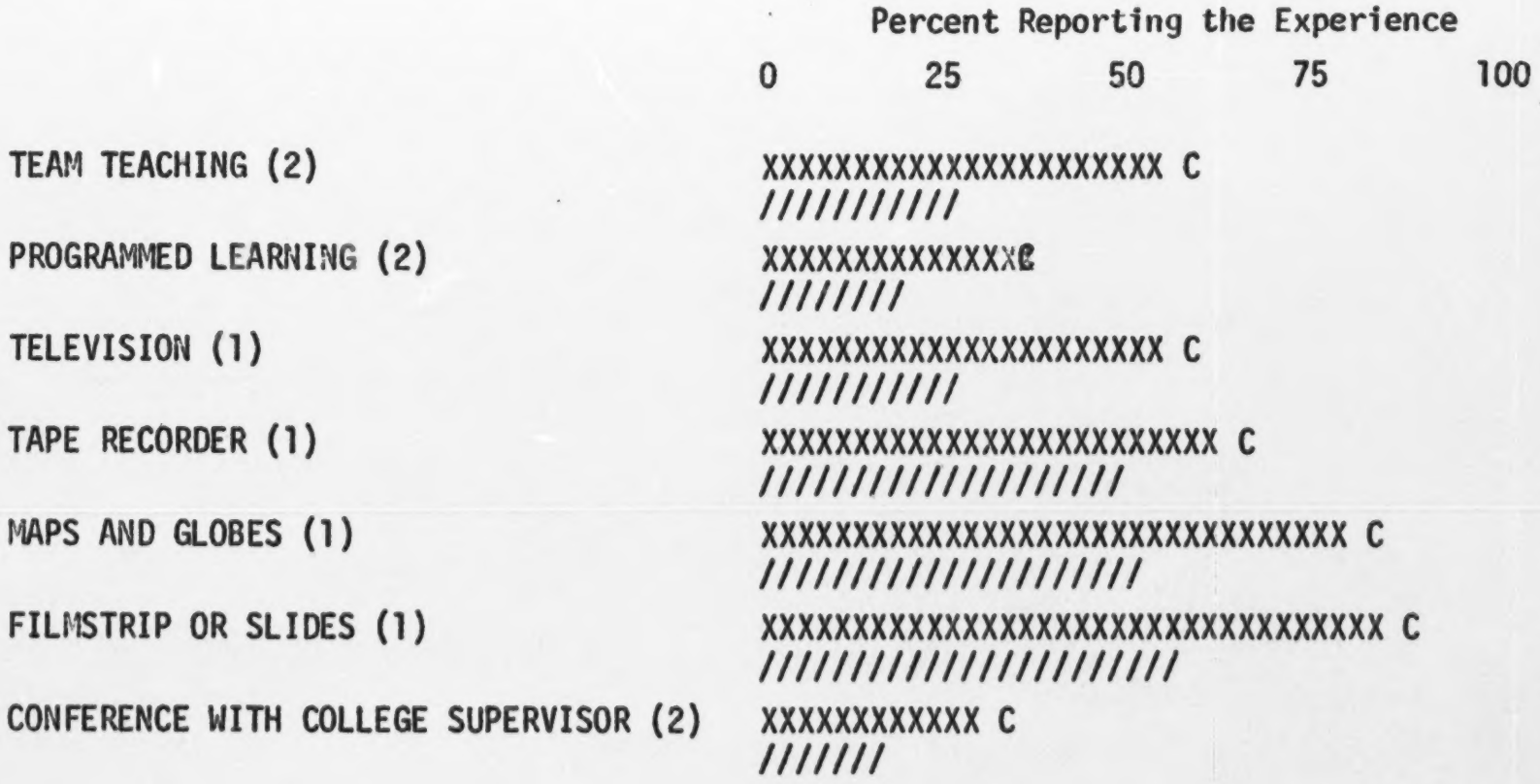
The students had differed significantly from the supervising teachers on the need for deference at the beginning of the semester but had increased their need for help with their work at the end of the semester so that the difference between them and their supervising teachers was not significant.

Although there were changes in the direction of the supervising teacher's scores on the Rokeach, the self-perception as a teacher, and the attitude toward children scales, none of these achieved significance.

A chart showing the comparison of mean differences in attitudes of student teachers after one semester in student teaching appears on the following page.

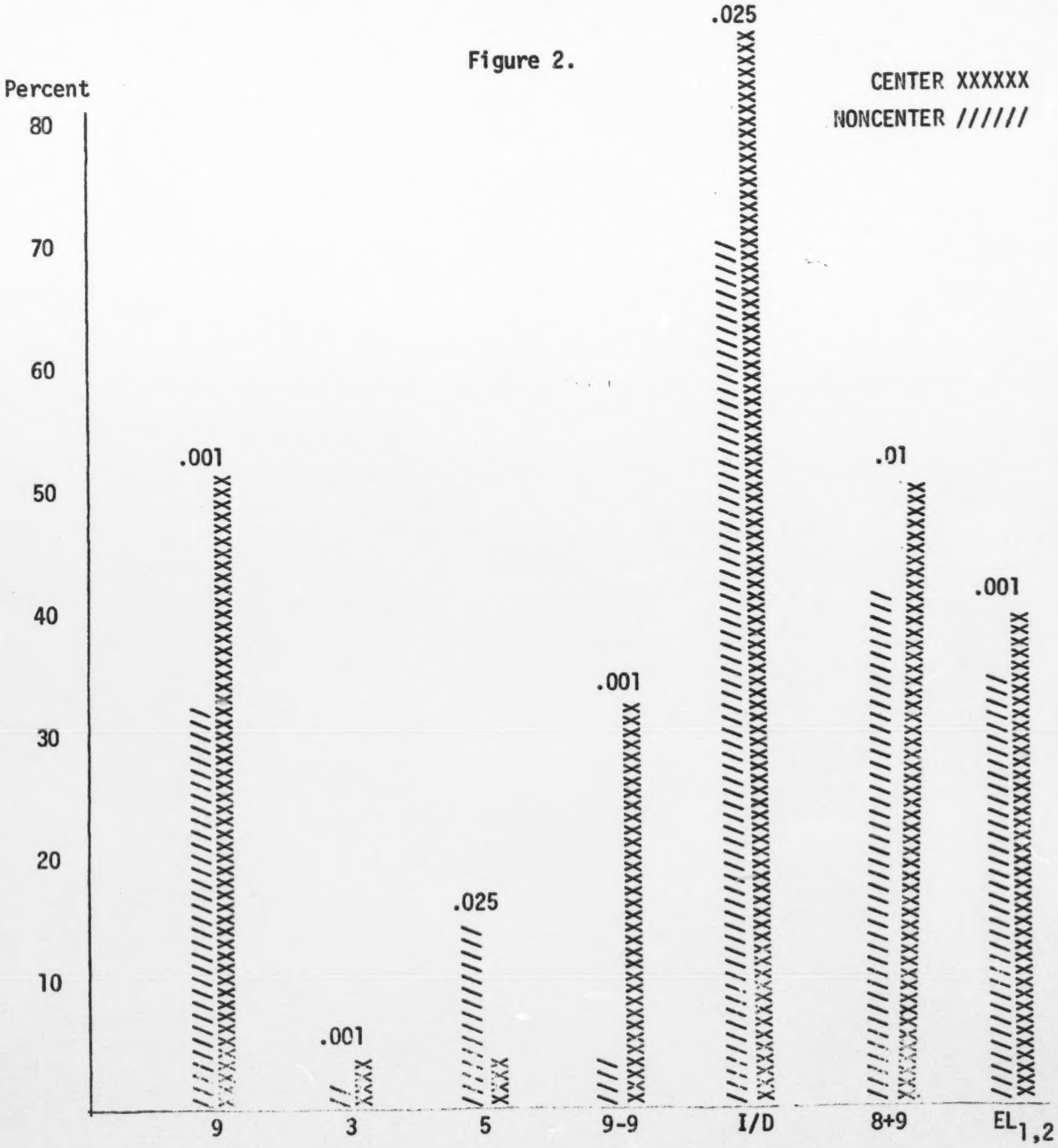
Figure 1.

COMPARISON OF SELECTED STUDENT TEACHING EXPERIENCES IN CENTER AND NONCENTER ASSIGNMENTS



Legend: (1) Once or More
(2) Occasionally or Frequently
XXXXXXX Center
/////// Noncenter

Figure 2.



SELECTED TEACHER BEHAVIOR - PRELIMINARY STUDY - FALL, 1968

Code:- Flanders Interaction Analysis System:

Cat. 9 - Student Initiated Response
" 3 - Accepting Student Ideas & Clarifying
" 5 - Lecturing and Giving Information

9-9 Extended Student Initiated Response
I/D Indirect/Direct Teaching Ratio
8+9 Student Talk
$EL_{1,2}$ Asking pupils to elaborate
Asking 2nd pupil to elaborate on 1st student's response

TABLE I

Comparison of Scores on
Ryan's Teacher Characteristics Scale

Category	NC	C	Z	Significance Level	
Xco	85	72	.78	C > NC	.218
Yco	90	78	1.46	NC > C	.072
Zco	82	72	2.37	C > NC	.009
Rco	79	71	.74	C > NC	.233
R_1co	82	76	1.43	C > NC	.0764
Qco	87	76	.81	NC > C	.212
Bco	81	73	.93	NC > C	.176
Ico	80	76	3.14	C > NC	.0008
Sco	80	75	1.47	C > NC	.071
Vco	84	71	.97	NC > C	.166

Key to Category Descriptions:

Xco - Understanding, friendly teacher classroom behavior
Yco - Responsible, businesslike teacher classroom behavior
Zco - Stimulating, imaginative teacher behavior
Rco - Teacher's favorable vs. unfavorable opinions of pupils
R_1co- Teacher's favorable vs. unfavorable opinions regarding democratic pupil practices
Qco - Teacher's favorable vs. unfavorable opinions of school personnel, particularly fellow teachers
Bco - Teacher's traditional subject-matter-centered viewpoints vs. social-personal-oriented, child-centered-permissive viewpoint
Ico - Verbal understanding
Sco - Emotional adjustment
Vco - Avoidance of excessive use of self-enhancing and socially acceptable responses

TABLE II

Comparison of Selected Indices
of Teaching Performance

Experimental Mathematics Teacher Education Project

Category	Mean		Significance Level
	Center	Noncenter	
ID Ratio	.426	.412	N.S.
Revised ID Ratio	5.29	6.81	N.S.
Percent Student Initiated Talk -- Total	.154	.09	.05
Percent of Students with Major Patterns	.63	.66	--
Percent Patterns with Student Initiated Talk	.27	0.0	--
Teacher Talk -- Total	.311	.327	.10
Praise and Encourage -- Total	.043	.047	N.S.

TABLE III

Comparison of Verbal Interaction
Spring and Fall, 1969

Category	-Z-	Significance Level	
Indirect/Direct Ratio	2.28	C > NC	.011
Revised Ratio	1.02	C > NC	.153
Teacher/Student Talk Ratio	-2.86	NC > C	.002
Student Response/Student Initiated Response Ratio	2.84	C > NC	N.S.
Praising, Encouraging Student Responses (Percent Total)	2.62	C > NC	.005
Acceptance of Student Responses (Percent Total)	.15	C > NC	N.S.
Lecture-Information (Percent Total)	-2.57	NC > C	.005
Student Initiated Responses (Percent Total)	.18	C > NC	N.S.
Extended Student Initiated Responses (Percent Total)	-1.84	NC > C	.033
Indirect/Direct Ratio, Row 8 & 9	1.03	C > NC	.15
Indirect/Direct Ratio, Row 8	.13	C > NC	N.S.

TABLE IV

Comparison of Teaching Patterns
Spring and Fall, 1969

Pattern	Center Percent Total	Noncenter Percent Total
4-8-2-4	.45	.28
4-9-2-4	.18	.20
4-8-2-5-4	.08	.12
4-9-2-5-4	.03	.12

Code:

4-8-2-4	Teacher Question, Student Response, Teacher Praise, Teacher Question
4-9-2-4	Teacher Question, Student Initiated Response, Teacher Praise, Teacher Question
4-8-2-5-4	Category 5 - Teacher Lecture
4-9-2-5-4	Category 5 - Teacher Lecture

TABLE V

Comparison of Thought Processes
in Verbal Interaction (Aschner-Gallagher)
Spring and Fall, 1969

Category	Mean Frequency (%) Centers	Noncenters	u	Significance Level
Routine	21.6	11.8	244	N.S.
Management	10.1	0		
Structuring	6.1	7.6		
Verdict	5.4	4.2		
Cognitive-Memory	21.4	24.2	184	N.S.
Recapitulation	3.1	6.0		
Clarification	0	0		
Factual	18.3	18.2		
Convergent Thinking	34.5	59.0	52	.001
Translation	3.1	0		
Association	9.3	23.0		
Explanation	4.6	20.0		
Conclusion	17.5	36.0		
Evaluative Thinking	9.7	4.0	144	.10
Unstructured	3.2	1.0		
Structured	4.5	1.4		
Qualification	2.0	1.6		
Divergent Thinking	12.8	2.0	132	.05
Elaboration	1.0	1.0		
Divergent association	6.4	0		
Implication	4.1	1.0		
Synthesis	1.3	0		